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CLAIMS:

1. A method for selecting a nucleic acid having a desired feature comprising:

a) providing a viral genome capable, when present into a suitable host, of expressing an exogenous nucleic acid inserted therein and also capable of packaging itself into a viral particle;

b) providing a suppressive condition wherein said viral genome is capable of packaging itself into a viral particle only once said suppressive condition is being overcome;

c) inserting an exogenous nucleic acid into said viral genome to provide a recombinant viral genome;

d) transfecting said recombinant viral genome into a suitable host; and

e) allowing said recombinant viral genome to express said exogenous nucleic acid and package itself into a recombinant viral particle, whereby production of at least one recombinant viral particle is indicative that said suppressive condition has been overcome and that the exogenous nucleic acid inserted in step c) has the desired feature.

2. The method of claim 1, wherein said suppressive condition is provided with a method selected from the group consisting of:

- modifying said viral genome in order to inactivate a viral gene product involved in the packaging of said viral particle(s);
- exposing the host transfected in step d) to a substance inhibiting viral packaging function(s).

3. The method of claim 2, wherein said viral genome is modified in order to encode a dysfunctional signal peptide and wherein production of a viral particle is dependent on insertion into said viral genome of an exogenous nucleic acid encoding a functional signal peptide or at least partially a protein having a signal peptide.

4. The method of claim 3, wherein said exogenous nucleic acid is devoid of a termination codon in frame and downstream of a translation start site.

5. The method of claim 2, wherein said viral genome is modified to encode a fusion protein comprising a structural viral protein bound to a fetter-protein, and wherein production of a viral particle is dependent on liberation of said structural viral protein from said fetter-protein.

6. The method of claim 5, wherein said nucleic acid having a desired feature is selected from the group consisting of nucleic acids encoding proteases, and nucleic acids encoding proteins or peptides having a proteolytic activity.

7. The method of claim 2, wherein said substance inhibiting viral packaging function(s) is selected from the group consisting of cerulerin and okadaic acid.

8. The method of claim 1, wherein said viral genome is transfected into said suitable host in a RNA form.

9. The method of claim 1, wherein said viral genome is in a cDNA form and is incorporated into a vector.

10. The method of claim 9, wherein said vector is a plasmid.

11. The method of claim 1, wherein said exogenous nucleic acid is taken from a library of nucleic acids.

12. The method of claim 11, wherein said library of nucleic acids comprises nucleic acids selected from cDNAs, cDNA fragments, genomic DNA fragments, antisense RNAs, and oligonucleotides.

13. The method of claim 1, wherein said viral genome encodes an Alphavirus.

14. The method of claim 13, wherein said Alphavirus is a Sindbis virus or a Semliki Forest virus.

15. The method of claim 1, wherein the viral genome of step a) is also capable of autoreplication and wherein insertion in step c) of an exogenous nucleic acid having a desired feature results in the production of a clonal population of recombinant viral particles.

16. The method of claim 15, wherein the recombinant viral particles produced are infectious.

17. The method of claim 1, further comprising a step selected from the group consisting of: (i) isolating said recombinant viral particle; (ii) propagating said recombinant viral particle; (iii) identifying the function of said exogenous nucleic acid; (iv) identifying the product expressed by said exogenous nucleic acid; and (v) sequencing at least partially the exogenous nucleic acid found into said recombinant viral particle.

18. A method for selecting a nucleic acid having a desired feature comprising:

a) providing a viral genome capable, when present into a suitable host, of expressing an exogenous nucleic acid inserted therein, of autoreplication and also capable of packaging copies of itself into a plurality of viral particles;

b) providing a suppressive condition wherein said viral genome is capable of autoreplication or producing a viral particle capable of infecting a suitable host only once said suppressive condition is being overcome;

c) inserting an exogenous nucleic acid into said viral genome to provide a recombinant viral genome;

d) transfecting said recombinant viral genome into a suitable host; and

e) allowing said recombinant viral genome to express said exogenous nucleic acid, autoreplicates and package copies of itself into a plurality of recombinant viral particles, whereby production of a plurality of infectious recombinant viral

particles is indicative that said suppressive condition has been overcome and that the exogenous nucleic acid inserted in step c) has the desired feature.

19. The method of claim 18, wherein said suppressive condition is obtained by abolishing autoreplication function(s) of said viral genome and/or infectivity of viral particles produced therefrom, and wherein expression of a nucleic acid having a desired feature reestablish said autoreplication functions and/or infectivitity.

20. A method for selecting a nucleic acid having a desired feature, the method comprising the steps of:

a) providing a plasmid comprising a viral genome encoding a viral particle, said viral genome when present into a suitable host having the abilities of:
   i) expressing an exogenous nucleic acid inserted therein; and
   ii) packaging said exogenous nucleic acid into a recombinant viral particle;
b) inactivating the packaging ability of the viral genome of step a) and inserting an exogenous nucleic acid into said viral genome to provide a recombinant viral genome;
c) producing copies of said recombinant viral genome;
d) transfecting said copies into a suitable host; and
e) allowing said recombinant viral genome to express said exogenous nucleic acid and package itself into a recombinant viral particle, whereby production of at least one recombinant viral particle is indicative that the packaging ability of the viral genome has been restored and that the exogenous nucleic acid inserted in step b) has the desired feature.

21. A method for selecting a nucleic acid encoding a signal peptide or a protein having a signal peptide, said method comprising the steps of:

a) providing a viral genome modified in order to encode a dysfunctional signal peptide and wherein production of a viral particle is dependent on the expression of a functional signal peptide;
b) inserting an exogenous nucleic acid into the nucleic acid encoding said dysfunctional signal peptide to provide a recombinant viral genome;

c) transfecting the recombinant viral genome of step b) into a suitable host; and

d) allowing said recombinant viral genome to express said exogenous nucleic acid and package itself into a recombinant viral particle, whereby production of at least one recombinant viral particle is indicative that the exogenous nucleic acid inserted in step b) encodes a signal peptide or a protein having a signal peptide.

22. The method of claim 21, wherein said viral genome has been modified in order to render dysfunctional the signal peptide of a viral envelope protein.

23. The method of claim 22, wherein said signal peptide dysfunction does not affect viral envelope proteins association.

24. The method of claim 23, wherein the amino acid sequence of said dysfunctional signal peptide is SAAPLVTAMCRSGNVS or SAAPLVTAMCGSGNVS.

25. The method of claim 21, wherein said viral genome is incorporated into a vector in a cDNA form and wherein it is transfected into said suitable host in a RNA form.

26. The method of claim 21, wherein said viral genome encodes an Alphavirus.

27. A method for selecting a nucleic acid encoding a protease, or encoding a protein or a peptide having a proteolytic activity, the method comprising the steps of:

a) providing a viral genome modified in order to encode a fusion protein comprising a structural viral protein bound to a fetter-protein, wherein production of a viral particle is dependent on liberation of said structural viral protein from said fetter-protein;

b) inserting an exogenous nucleic acid into the viral genome of step a) in order to provide a recombinant viral genome;

c) transfecting the recombinant viral genome of step b) into a suitable host; and

d) allowing said recombinant viral genome to express said exogenous nucleic acid and package itself into a recombinant viral particle, whereby production of at least one recombinant viral particle is indicative that the exogenous nucleic acid inserted in step b) encodes a peptide or a protein having a proteolytic activity or a protease capable of liberating said structural viral protein from said fetter-protein.

28. The method of claim 27, wherein said fetter-protein blocks said structural viral protein packaging function(s).

29. The method of claim 27, wherein the fusion protein comprises a protease cleavage site located between said structural viral protein and said fetter-protein.

30. The method of claim 27, wherein said structural viral protein is a virus envelope protein or a protein from the capsid.

31. The method of claim 27, wherein said viral genome encodes an Alphavirus.

32. The method of claim 31, wherein said viral structural protein is the C protein of the Sindbis virus.

33. A method for selecting a nucleic acid encoding a drug-resistance protein or peptide comprising the steps of:

a) providing a viral genome encoding a viral particle, said viral genome when present into a suitable host having the abilities of:

   i) expressing an exogenous nucleic acid inserted therein; and

   ii) packaging said exogenous nucleic acid into a recombinant viral particle;

b) inserting an exogenous nucleic acid into said viral genome to provide a recombinant viral genome;

c) transfecting said recombinant viral genome into a suitable host; and

d) exposing the host transfected in step c) to a substance inhibiting viral packaging function(s);

e) allowing said recombinant viral genome to express said exogenous nucleic acid and package itself into a recombinant viral particle, whereby production of at least one recombinant viral particle is indicative that the exogenous nucleic acid inserted in step b) encodes a drug-resistance protein or peptide.

34. Use of a virus for selecting a nucleic acid having a desired feature, wherein an exogenous nucleic acid is inserted into a viral genome to provide a recombinant viral genome, and wherein said recombinant viral genome is capable of producing a viral particle solely if said exogenous nucleic acid has the desired feature.

35. An isolated nucleic acid molecule encoding a dysfunctional viral genome, wherein production of a viral particle from said nucleic acid molecule is dependent on:

- insertion of an exogenous nucleic acid having a desired feature into said nucleic acid molecule; and
- introduction of said nucleic acid molecule incorporating said exogenous nucleic acid into a suitable host.

36. The nucleic acid molecule of claim 35, wherein said exogenous nucleic acid having a desired feature is selected from the group consisting of nucleic acids encoding a signal peptide, nucleic acids encoding at least partially for a protein having a signal peptide, nucleic acids encoding proteases, nucleic acids encoding proteins or peptides having a proteolytic activity and nucleic acids encoding drug-resistance proteins or peptides.

37. The nucleic acid molecule of claim 35, wherein said dysfunctional viral genome comprises a nucleic acid encoding a dysfunctional viral structural protein and wherein production of a at least one viral particle is dependent on the expression of a functional viral structural protein.

38. The nucleic acid molecule of claim 35, wherein said nucleic acid molecule is incorporated into a plasmid vector.

39. The nucleic acid molecule of claim 35, wherein said viral genome encodes an Alphavirus.

40. The nucleic acid molecule of claim 35, comprising a nucleic acid sequence selected from the group consisting of SEQ ID NOS. 21 to 24, and SEQ ID NO. 27.

41. A kit for selecting a nucleic acid having a desired feature, comprising:

- an isolated nucleic acid molecule encoding a dysfunctional viral genome according to claim 35; and
- at least one further element selected from the group consisting of instructions for using said kit, reaction buffer(s), enzyme(s), probe(s) and pool(s) of exogenous nucleotide sequences.

42. An isolated N-terminal amino acid sequence encoding a dysfunctional signal peptide of a viral envelope protein, said dysfunctional signal peptide having the characteristics of allowing viral envelope proteins association without directing said viral envelope protein into the cellular secretory pathway and across the lipid bilayer of a host cell.

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43. The N-terminal amino acid sequence claim 41, wherein said amino acid sequence is SAAPLVTAMCRSGNVS or SAAPLVTAMCGSGNVS.